

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK**

CARVANA, LLC,

Plaintiff / Counter-Defendant,

v.

INTERNATIONAL BUSINESS
MACHINES CORPORATION,

Defendant / Counter-Plaintiff.

Case No. 7:23-cv-08616-KMK

**IBM’S ANSWER TO CARVANA’S
COMPLAINT FOR DECLARATORY
JUDGMENT OF NON-INFRINGEMENT
AND IBM’S COUNTERCLAIMS**

JURY TRIAL DEMANDED

Defendant International Business Machines Corporation (“IBM”), by and through its undersigned counsel, hereby responds to the Complaint [Corrected] for Declaratory Judgment of Non-Infringement (“Complaint”), filed October 2, 2023, by Plaintiff Carvana, LLC (“Carvana”).

PRELIMINARY STATEMENT

In 2021, IBM discovered that Carvana was using some of IBM’s patents without permission. IBM promptly approached Carvana and attempted to negotiate an amicable resolution to this serious matter. In the following years, IBM has sent numerous letters and claim charts demonstrating Carvana’s infringement of IBM’s patents and asking to meet with Carvana to discuss the terms of a license agreement. Despite IBM’s diligence in providing Carvana with updated evidence of infringement from IBM’s ongoing investigation, Carvana refused to engage in good-faith licensing discussions. Beyond a single meeting taking place shortly after IBM’s first notice letter, Carvana has repeatedly refused IBM’s requests for further meetings and refused all invitations to propose or discuss license agreement terms. After IBM’s latest notice, which provided updated evidence of infringement and reiterated IBM’s offered license agreement terms,

Carvana acknowledged the update and claimed it would “respond to [IBM’s] Notice Letter and offer to settle in due course.” Instead, without warning, Carvana brought this lawsuit against IBM.

IBM answers the Complaint as follows.

NATURE OF THE ACTION

To the extent the various headings in the Complaint are intended to constitute allegations, IBM denies them.

1. IBM admits that Carvana is seeking a declaration of non-infringement of U.S. Patent Nos. 7,072,849 (the “’849 patent”), 7,543,234 (the “’234 patent”), and 7,631,346 (the “’346 patent”) (collectively, the “Asserted Patents” or “Patents-In-Suit”) from the Court under the patent laws of the United States, 35. U.S.C. § 1 et seq., and the Declaratory Judgment Act, 28 U.S.C. §§ 2201 and 2202, and is seeking other relief as the Court deems just and proper. IBM denies that any factual or legal basis exists for any of Carvana’s claims against IBM in this action, or that Carvana is entitled to any relief whatsoever. IBM otherwise denies all remaining or different allegations in Paragraph 1 of the Complaint.

THE PARTIES

2. IBM lacks sufficient information or knowledge to admit the allegations in Paragraph 2 of the Complaint, and therefore denies the same.

3. IBM lacks sufficient information or knowledge to admit or deny the allegations in Paragraph 3 of the Complaint, and therefore denies the same.

4. IBM admits the allegations in Paragraph 4 of the Complaint.

5. IBM admits the allegations in Paragraph 5 of the Complaint.

JURISDICTION AND VENUE

6. The allegations in Paragraph 6 of the Complaint are legal conclusions to which no response is required.

7. The allegations in Paragraph 7 of the Complaint are legal conclusions to which no response is required.

8. The allegations in Paragraph 8 of the Complaint are legal conclusions to which no response is required.

9. The allegations in Paragraph 9 of the Complaint are legal conclusions to which no response is required.

10. IBM admits that Judge Jed S. Rakoff construed five terms from the '849 patent (*Chewy, Inc. v. IBM*, 571 F. Supp. 3d 133, 141-43 (S.D.N.Y. 2021)) and granted Chewy's motion for summary judgment of non-infringement. *Chewy, Inc. v. IBM*, 597 F. Supp. 3d 669 (S.D.N.Y. 2022). The remaining allegations in Paragraph 10 of the Complaint are legal conclusions to which no response is required. IBM otherwise denies all remaining or different allegations in Paragraph 10 of the Complaint.

THE ASSERTED PATENTS

11. IBM admits that the '849 patent is titled "Method for Presenting Advertising in an Interactive Service." IBM admits that the '849 patent issued on July 4, 2006, to named inventors Robert Filepp, Alexander W. Bidwell, Francis C. Young, Allan M. Wolf, Duane Tiemann, Mel Bellar, Robert D. Cohen, James A Galambos, Kenneth H. Appleman, and Sam Meo. IBM admits that the '849 patent was assigned to IBM. IBM admits that Exhibit A to the Complaint is a true and correct copy of the '849 patent. IBM otherwise denies all remaining or different allegations in Paragraph 11 of the Complaint.

12. IBM admits the allegations in Paragraph 12 of the Complaint. IBM admits that Exhibit B to the Complaint is a true and correct copy of the '234 patent.

13. IBM admits the allegations in Paragraph 13 of the Complaint. IBM admits that Exhibit C to the Complaint is a true and correct copy of the '346 patent.

THE PARTIES' DISPUTE CONCERNING THE ASSERTED PATENTS

14. IBM admits that it has brought infringement actions against Expedia, Airbnb, Zillow, Rakuten, and Zynga. IBM admits that it informed Carvana in February of 2022 that it made the list of litigation candidates given Carvana's refusal to engage in good-faith licensing discussions. IBM otherwise denies all remaining or different allegations in Paragraph 14 of the Complaint.

15. The allegations in Paragraph 15 of the Complaint are legal conclusions to which no response is required. To the extent a response is required, IBM admits that Paragraphs 19-24, 26-28, and 30-41 Complaint are directed to the correspondence exchanged between IBM and Carvana. IBM otherwise denies all remaining or different allegations in Paragraph 15 of the Complaint.

16. IBM denies the allegations in Paragraph 16 of the Complaint.

17. IBM admits that Carvana filed a complaint for declaratory judgment of non-infringement of the Asserted Patents. IBM further admits that Chewy filed a complaint for declaratory judgment of non-infringement of the '849 Patent. IBM otherwise denies all remaining or different allegations in Paragraph 17 of the Complaint.

18. IBM denies the allegations in Paragraph 18 of the Complaint.

19. IBM admits that it requested \$35M for a portfolio-wide cross-license with Carvana in October 2021. IBM further admits that on October 27, 2021, Ms. Leann M. Pinto of IBM sent a letter to Ms. Jessica Wilson, Associate IP Counsel of Carvana, with the subject line "Notice of Infringement for IBM US Patent Nos.: 7,072,849; 7,631,346; 6,778,193; and 7,543,234." IBM otherwise denies all remaining or different allegations in Paragraph 19 of the Complaint.

20. IBM admits that the letter states that Carvana infringes at least claims 1 of the '849, '234, '346, and '193 patents by at least its www.carvana.com website. IBM admits that the letter states that "IBM has been forced to resolve infringement of its patents through judicial proceedings at times. Indeed, we have initiated patent litigations against Amazon, Priceline, Expedia, Zillow,

Airbnb and Groupon, among others, to redress the unauthorized use of IBM's patented inventions." IBM further admits that Mr. Thomas McBride is a non-lawyer licensing executive with IBM who was engaged in negotiations with Chewy before the *Chewy* litigation. IBM otherwise denies all remaining or different allegations in Paragraph 20 of the Complaint.

21. IBM admits that on February 1, 2022, the parties entered into a non-disclosure agreement. IBM admits that, on February 10, 2022, Mr. McBride sent a reasonable settlement offer for Carvana's infringement of the Asserted Patents. IBM admits that the settlement offer was good until March 31, 2022, after which it expired. IBM further admits that Carvana did not accept IBM's settlement offer. IBM otherwise denies all remaining or different allegations in Paragraph 21 of the Complaint.

22. IBM admits that Mr. McBride sent an email on February 10, 2022, with the subject line "Patents Being Infringed (Subject to FRE 408)," stating that IBM would not license "***just*** the patents being infringed," including the '849, '234, and '346 patents, because those patents "are currently in litigation." IBM also admits that the February 10, 2022, settlement offer was a patent cross license agreement between IBM and Carvana. IBM further admits that Mr. McBride sent an email on February 23, 2022, explaining that the cost of "a license **to just the four IBM patents** currently noticed to Carvana as being infringed" would be "based on the result of a jury award after trial." IBM otherwise denies all remaining or different allegations in Paragraph 22 of the Complaint.

23. IBM admits that on February 10, 2022, Mr. McBride sent an email to Carvana with the subject line "Patents Being Infringed (Subject to FRE 408)," explaining the results of the IBM/Groupon trial. IBM admits that the email stated that the *Chewy* trial was set for 2022. IBM otherwise denies all remaining or different allegations in Paragraph 23 of the Complaint.

24. IBM admits that the quoted language appears in Mr. McBride's February 23, 2022,

email. IBM otherwise denies all remaining or different allegations in Paragraph 24 of the Complaint.

25. The allegations in Paragraph 25 of the Complaint are legal conclusions to which no response is required. To the extent a response is required, IBM denies the allegations in Paragraph 25 of the Complaint.

26. IBM admits that at a March 18, 2022, meeting between IBM and Carvana, Carvana's outside counsel presented a 50+ page PowerPoint deck explaining why Carvana believes it does not infringe the Asserted Patents. IBM further admits that, by the time of this meeting, the '193 patent was invalidated under 35 U.S.C. § 101. *See Int'l Bus. Mach. Corp. v. Zillow Grp., Inc.*, No. 20-cv-1130-TSZ, 2022 WL 704137 (W.D. Wash. Mar. 9, 2022). IBM otherwise denies all remaining or different allegations in Paragraph 26 of the Complaint.

27. IBM admits that, after reviewing the material with outside counsel, McBride responded to Carvana on April 28, 2022, stating that IBM strongly believes its proofs are valid. IBM further admits that the quoted language appears in the email. IBM denies all remaining or different allegations in Paragraph 27 of the Complaint.

28. IBM admits that on April 28, 2022, outside counsel for Carvana responded indicating that the non-infringement decision in the *Chewy* case is "significant to" Carvana. IBM denies all remaining or different allegations in Paragraph 28 of the Complaint.

29. IBM admits that in a case that did not involve Carvana, on April 11, 2022, Judge Rakoff granted Chewy's motion for summary judgment of non-infringement relating to Chewy's products' use of the '849 patent. *See Chewy, Inc. v. Int'l Bus. Mach. Corp.*, 597 F. Supp. 3d 669 (S.D.N.Y. 2022), appeal pending, No. 22-1756 (Fed. Cir.). IBM admits that Judge Rakoff found that "no reasonable factfinder could conclude that Chewy performs the 'selectively storing' element of asserted claims 1, 2, 14, and 18 of the '849 patent." *Id.* at 681. IBM also admits that on October 25,

2022, the Patent Trial and Appeal Board (“PTAB”) instituted *inter partes* review proceeding of claims 1-20 of the ’346 patent as anticipated and/or obvious over the prior art. *See Ebates Performance Marketing, Inc. d/b/a Rakuten Rewards v. Int’l Bus. Mach. Corp.*, IPR2022-00646 (P.T.A.B. Oct. 25, 2022). IBM admits that the PTAB issued a Final Written Decision on October 11, 2023, finding that claims 1-4, 12-16, 18, and 19 are unpatentable but upholding the validity of claims 5-11, 17, and 20. IBM further admits that on May 24, 2023, the PTAB issued a Final Written Decision ruling that claims 1, 3-6, 13, and 15-18 of the ’234 patent are unpatentable under 35 U.S.C. § 103(a) but upholding the validity of claims 2, 7-12, and 14 of the ’234 Patent. *See Ebates Performance Marketing, Inc. d/b/a Rakuten Rewards v. Int’l Bus. Mach. Corp.*, IPR2022-00133 (P.T.A.B. May 24, 2023). IBM further admits that it did not appeal that decision. IBM denies all remaining or different allegations in Paragraph 29 of the Complaint.

30. IBM admits that, on May 3, 2022, Mr. McBride sent an email to Carvana and its outside counsel with the subject line “IBM Discussions (Subject to NDA and FRE 408) Power Point Deck.” IBM admits that the email contains the quoted language. IBM also admits that the email stated that IBM would not withdraw the ’849 or ’234 patents from discussions because both patents are valid, and IBM intended to appeal the *Chewy* decision. IBM further admits that Mr. McBride also stated that IBM filed suit against Zynga in the United States District Court for the District of Delaware and enclosed a copy of the complaint. IBM denies all remaining or different allegations in Paragraph 30 of the Complaint.

31. IBM admits that Mr. McBride sent Carvana a license offer on June 6, 2022 that was contingent on closing by June 30, 2022. IBM also admits that Carvana did not respond to the offer by June 30, 2022. IBM denies all remaining or different allegations in Paragraph 31 of the Complaint.

32. IBM admits that Carvana never made a counteroffer to IBM. IBM denies all

remaining or different allegations in Paragraph 32 of the Complaint.

33. IBM admits that on February 8, 2023, Mr. McBride sent an email to Carvana's in-house and outside counsel containing the quoted language and included a PDF attachment. IBM denies all remaining or different allegations in Paragraph 33 of the Complaint.

34. IBM admits that Carvana's outside counsel Mr. Brian LaCorte sent Mr. McBride an email on February 9, 2023, with the subject line "IBM Discussions (Subject to FRE 408)" stating "[w]e disagree that Carvana has ignored IBM's demands. To the contrary, we have presented to your team, at length, detailed and well-supported non-infringement and invalidity analysis that has gone unrebutted by IBM for over a year." IBM also admits that the email stated "IBM provides no detail whatsoever why its identical infringement allegations of the '894 patent disposed of in *Chewy* against IBM is somehow different here, other than your statement that an appeal is 'imminent.'" IBM also admits that the email stated that "[a] binding final judgment from an Article III Court disposing of the validity of the '193 patent means it cannot be asserted here in good faith for some sort of bargain-basement licensing because IBM 'might appeal' the '193 invalidation." IBM further admits that the email stated "I am not sure further discussion is necessary, particularly given what is pending against the asserted patents, but ... the soonest I could discuss this would be March 15 or later." IBM denies all remaining or different allegations in Paragraph 34 of the Complaint.

35. IBM admits that Mr. McBride sent an email on July 26, 2023, with the subject line "Recent Developments in Litigation (Subject to FRE 408)" to Carvana's in-house and outside counsel that contains the quoted language. IBM denies all remaining or different allegations in Paragraph 35 of the Complaint.

36. IBM admits that Mr. McBride and Carvana sent additional emails after July 26, 2023.

37. IBM admits that, on August 8, 2023, Mr. McBride sent by email a Notice Letter to

Carvana's in-house and outside counsel including claim charts proving infringement of claims 1 and 8 of the '849 patent and claim 1 of the '346 patent. IBM also admits that Mr. McBride's email invited Carvana "to make IBM an offer to settle." IBM denies all remaining or different allegations in Paragraph 37 of the Complaint.

38. IBM admits the allegations in Paragraph 38 of the Complaint.

39. IBM admits that, on August 11, 2023, Mr. McBride sent by email a Notice Letter to Carvana's in-house and outside counsel with the subject line "Notice Letter for Daniels '234 Claim 7 (Subject to FRE 408)" along with claim charts showing infringement of claim 7 of the '234 patent. IBM also admits that Mr. McBride's email invited Carvana "to make IBM an offer to settle." IBM denies all remaining or different allegations in Paragraph 39 of the Complaint.

40. IBM admits that on August 21, 2023, Mr. McBride sent an email with the subject line "Notice Letter for Filepp '849 Claim 8 (Subject to FRE 408)" to Carvana's in-house and outside counsel containing the quoted language. IBM denies all remaining or different allegations in Paragraph 40 of the Complaint.

41. IBM admits that on August 8, 2023 and August 11, 2023, IBM sent to Carvana Notice Letters and claim charts showing infringement of claims 1 and 8 of the '849 patent and claim 7 of the '234 patent. IBM denies all remaining or different allegations in Paragraph 41 of the Complaint.

42. IBM admits that Carvana declined to negotiate in good faith in an effort to achieve settlement by the end of September 2023. IBM denies all remaining or different allegations in Paragraph 42 of the Complaint.

43. IBM denies the allegations in Paragraph 43 of the Complaint.

44. IBM denies the allegations in Paragraph 44 of the Complaint.

45. The allegations in Paragraph 45 of the Complaint are legal conclusions to which no

response is required. To the extent a response is required, IBM denies the allegations in Paragraph 45 of the Complaint.

FIRST CLAIM FOR RELIEF

(Declaratory Judgment of Non-Infringement of the '849 Patent)

46. In response to Paragraph 46 of the Complaint, IBM incorporates by reference its Answers to each of the paragraphs above. IBM denies all remaining or different allegations in Paragraph 46 of the Complaint.

47. IBM denies the allegations in Paragraph 47 of the Complaint.

48. IBM denies the allegations in Paragraph 48 of the Complaint.

49. IBM admits that the *Chewy* Court decisions included the quoted language in addition to other language. IBM denies all remaining or different allegations in Paragraph 49 of the Complaint.

50. IBM admits that, on June 1, 2023, the United States District Court for the District of Delaware construed “structuring advertising so that it may be selectively supplied to and retrieved at the reception systems for presentation” as “formatting advertising so that it may be selectively supplied to and retrieved (i.e., pre-fetched) at the reception systems for presentation.”

51. IBM denies the allegations in Paragraph 51 of the Complaint.

52. IBM denies the allegations in Paragraph 52 of the Complaint.

53. The allegations in Paragraph 53 of the Complaint are legal conclusions to which no response is required.

54. The allegations in Paragraph 54 of the Complaint are legal conclusions to which no response is required. To the extent a response is required, IBM denies the allegations in Paragraph 54 of the Complaint.

SECOND CLAIM FOR RELIEF

(Declaratory Judgment of Non-Infringement of the '234 Patent)

55. In response to Paragraph 55 of the Complaint, IBM incorporates by reference its Answers to each of the paragraphs above. IBM denies all remaining or different allegations in Paragraph 55 of the Complaint.

56. IBM denies the allegations in Paragraph 56 of the Complaint.

57. IBM admits the allegations in Paragraph 57 of the Complaint.

58. IBM denies the allegations in Paragraph 58 of the Complaint.

59. The allegations in Paragraph 59 of the Complaint are legal conclusions to which no response is required. IBM admits that the quoted language appears in the specification of the '234 patent. To the extent a response is required, IBM denies the allegations in Paragraph 59 of the Complaint.

60. IBM admits Carvana's website infringes the limitation "generating the portal page such that the two or more stacks of portlets are generated as a stack of stacks, wherein the stack of stacks presents a first stack of portlets and a control for selecting a second stack of portlets from within the two or more stacks of portlets that is not currently presented." IBM admits that the set of vehicle listings presented on Carvana's website is an example of a "stack of portlets." IBM admits that a set of vehicle listings presented on Carvana's website can be the result of, for example, a user applying filters to query Carvana's database of used vehicles for sale. IBM admits the filter(s) on Carvana's website is an example of a control for selecting a second set of vehicle listings from within the two or more sets of vehicle listings that is not currently presented. IBM admits that a user's selection of a different set of vehicle listings will result in a different set of vehicle listings being presented to the user. IBM denies all remaining or different allegations in Paragraph 60 of the Complaint.

61. IBM denies the allegations in Paragraph 61 of the Complaint.

62. IBM denies the allegations in Paragraph 62 of the Complaint.

63. The allegations in Paragraph 63 of the Complaint are legal conclusions to which no response is required.

64. The allegations in Paragraph 64 of the Complaint are legal conclusions to which no response is required. To the extent a response is required, IBM denies the allegations in Paragraph 64 of the Complaint.

THIRD CLAIM FOR RELIEF

(Declaratory Judgment of Non-Infringement of the '346 Patent)

65. In response to Paragraph 65 of the Complaint, IBM incorporates by reference its Answers to each of the paragraphs above. IBM denies all remaining or different allegations in Paragraph 65 of the Complaint.

66. IBM denies the allegations in Paragraph 66 of the Complaint.

67. IBM denies the allegations in Paragraph 67 of the Complaint.

68. IBM denies the allegations in Paragraph 68 of the Complaint.

69. IBM admits that Carvana's "account-ui" page of Carvana's website is an example of a "protected resource."

70. IBM denies the allegations in Paragraph 70 of the Complaint.

71. IBM denies the allegations in paragraph 71 of the Complaint.

72. The allegations in Paragraph 72 of the Complaint are legal conclusions to which no response is required.

73. The allegations in Paragraph 73 of the Complaint are legal conclusions to which no response is required. To the extent a response is required, IBM denies the allegations in Paragraph 73 of the Complaint.

PRAYER FOR RELIEF

IBM denies that Carvana is entitled to any relief, either as prayed for in the Complaint or otherwise. IBM further denies each allegation contained in the Complaint that was not specifically admitted, denied, or otherwise responded to herein. IBM respectfully requests that the Court enter judgment in its favor and against Carvana on the Complaint, declare this case exceptional under 35 U.S.C. § 285, award IBM its attorneys' fees, costs, and expenses, and grant IBM such further relief as the Court deems just and proper.

COUNTERCLAIMS

Counterclaim Plaintiff IBM asserts counterclaims of patent infringement against Carvana, demands a trial by jury on all issues so triable, and alleges as follows:

INTRODUCTION

1. IBM is in the innovation business. Every year, IBM spends billions of dollars on research and development to invent, market, and sell new technology. For example, through its investments and innovations in the new frontier of quantum information science, IBM is the leader in commercializing quantum computing, once thought to be a purely academic exercise. IBM's Q Network service—a community of Fortune 500 companies, academic institutions, research organizations, and startups working with IBM to advance quantum computing—now has over 100 members.

2. IBM obtains patents on the technology its inventors develop. IBM's commitment to research and innovation has resulted in numerous inventions that have led to the thousands of patents awarded to IBM by the United States Patent and Trademark Office each year. In fact, for 29 of the last 30 years, IBM scientists and researchers have been awarded more U.S. patents than those of any other company. Those patents are critical to IBM's business and its licensing philosophy.

3. For example, for over twenty years, IBM has been a strong proponent of open source technologies. IBM was a founding member of Open Invention Network, the largest patent non-aggression community in history, which supports freedom of action in Linux, a key element of open source software. IBM was able to leverage its patent portfolio to enable the broad industry adoption of open source technologies by pledging to provide open access to key innovations covered by hundreds of IBM software patents for those working on open source software. And early in 2020, IBM joined the License on Transfer Network (“LOT Network”), a non-profit community of companies that supports open innovation and responsible stewardship of technology. The LOT Network affirms the traditional use of patents—safeguarding the innovations of companies who research, develop, and sell new technologies—while protecting its members against patent assertion entities who purchase or acquire patents from others.

4. As another example, IBM has pledged to let anyone working on solutions to the coronavirus pandemic use its patents for free. IBM’s vast patent portfolio can now support researchers everywhere who are developing technologies to help prevent, diagnose, treat or contain COVID-19. The collection includes thousands of IBM artificial intelligence patents, some related to Watson technology, as well as dozens, if not hundreds, related to biological viruses.

5. IBM also believes in the protection of its proprietary technologies, which result from IBM’s extensive investments in research and development and the hard work of IBM’s employees. IBM believes that companies who use IBM’s patented technology should agree to a license and pay a fair royalty. When a company is using IBM’s patents without authorization, IBM first seeks to negotiate an agreement whereby IBM and the other company each receive a license to the other’s patent portfolio. That way, each company can avoid litigation, be fairly compensated for the use of all of their patents, and maintain freedom to operate in their respective markets.

6. IBM's research and development is currently focused on technology that includes quantum computing, big data analytics, artificial intelligence, and natural language processing. But IBM also has a long history of innovating and licensing its technology in the field of internet commerce. In fact, long before Carvana existed, IBM partnered with other companies to launch Prodigy, one of the very first e-commerce services.

7. Carvana, which was founded in 2012, after e-commerce was already established, took those prior innovations made by IBM and others to create and run its new business. As its business has developed, Carvana has incorporated additional innovations pioneered by IBM.

8. For over three years, IBM has tried to negotiate with Carvana about Carvana's unlicensed use of IBM's patents. Dozens of similar companies, including Amazon, Apple, Google, and Facebook, have agreed to cross licenses with IBM. Unfortunately, Carvana is not among them. Instead, to this day, Carvana has chosen to willfully infringe IBM's patents and even expand its infringing activity.

9. Rather than negotiate with IBM, Carvana has disregarded IBM's attempts to find a mutually acceptable resolution. In October 2021, IBM informed Carvana it was infringing IBM's patents through operation of its website, www.carvana.com. That same month, IBM provided Carvana with detailed evidence showing how Carvana infringed several IBM patents, including the '849, '234, and '346 patents, and offered to meet with Carvana to discuss a business resolution. After months of delay, on March 18, 2022, Carvana claimed that it did not infringe any of IBM's patents.

10. The parties continued to exchange letters, with IBM repeatedly asking for a meeting and Carvana repeatedly refusing. On August 8, 2023, IBM again provided Carvana with additional detailed notice of IBM's infringement claims and again invited Carvana to engage in meaningful discussion. On August 11, 2023, IBM informed Carvana it was infringing at least claim 7 of the '234

patent through operation of its website, www.carvana.com, and IBM provided Carvana with detailed evidence showing how Carvana infringed the '234 patent. Carvana did not respond to that letter. Then, without warning or notice, on October 2, 2023, Carvana brought this lawsuit against IBM.

NATURE OF THE CASE

11. This action arises under 35 U.S.C. § 271 for Defendant's infringement of IBM's United States Patent Nos. 7,072,849 (the "'849 patent"), 7,543,234 (the "'234 patent"), and 7,631,346 (the "'346 patent") (collectively the "Patents-In-Suit").

THE PARTIES

12. Plaintiff IBM is a New York corporation, with its principal place of business at 1 New Orchard Road, Armonk, New York 10504.

13. Defendant Carvana is an Arizona corporation, with its principal place of business at 1930 W Rio Salado Parkway, Tempe, Arizona 85281. Carvana conducts substantial business operations in New York, New York.

JURISDICTION AND VENUE

14. IBM incorporates by reference paragraphs 1-13.

15. This action arises under the patent laws of the United States, including 35 U.S.C. § 271 *et seq.* The jurisdiction of this Court over the subject matter of this action is proper under 28 U.S.C. §§ 1331 and 1338(a).

16. Venue is proper in the Southern District of New York pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b). Carvana conducts substantial business in New York, at least by offering for sale and selling products and services through its websites and mobile applications, which are accessible in New York. Infringement by Carvana has occurred and continues to occur in New York. Venue is also proper because Carvana consented to venue in this District, including by filing its Complaint in this District.

17. Personal jurisdiction exists over Carvana because it conducts business in New York, at least by offering for sale and selling products and services through its websites and mobile applications, which are accessible in New York, and because infringement has occurred and continues to occur in New York. Personal jurisdiction also exists over Carvana because it consented to the jurisdiction of this Court, including by commencing its Declaratory Judgment action against IBM and arguing that jurisdiction was proper.

FACTUAL BACKGROUND

A. IBM Is A Recognized Innovator.

18. IBM is a worldwide pioneer in various sectors of science and technology. During IBM's over 100-year history, IBM's employees have included six Nobel laureates, six Turing Award laureates, five National Medal of Science recipients, and fifteen inventors in the National Inventors Hall of Fame. IBM has been awarded the U.S. National Medal of Technology more times than any other company or organization—the U.S. National Medal of Technology is the nation's highest award for technological innovation.

19. IBM employees are responsible for technological advances that have become foundational technology that is widely incorporated into use by the global community today, including the dynamic random access memory (DRAMs) found in nearly all modern computers; magnetic disk storage (hard disk drives) found in computers and portable music players; and some of the world's most powerful supercomputers, including Deep Blue (the first computer to beat a reigning chess champion, Garry Kasparov), Watson (the system that combined content analysis, natural language processing, information retrieval, and machine learning to beat two of *Jeopardy!*'s greatest human champions), and Summit (the world's fastest supercomputer when delivered to Oak Ridge National Laboratory in 2018 that has been employed to tackle society's largest problems from the opioid crisis to COVID-19). Technology evolves quickly and the nature of research and development

ambitiously seeks out new discoveries. The inventions that IBM unearths today lay the groundwork for tomorrow's technology.

B. IBM Is Committed To Protecting Its Innovations Through The Patent System.

20. IBM's research and development operations differentiate IBM from many other companies. IBM annually spends billions of dollars for research and development. In addition to yielding inventions that have literally changed the way in which the world works, IBM's research and development efforts have resulted in more than 80,000 patents worldwide.

21. Like the research upon which the patents are based, IBM's patents also benefit society. Indeed, the Supreme Court has recognized that the patent system encourages both the creation and the disclosure of new and useful advances in technology. Such disclosure, in turn, permits society to innovate further. And, as the Court has further recognized, as a reward for committing resources to innovation and for disclosing that innovation, the patent system provides patent owners with the exclusive right to prevent others from practicing the claimed invention for a limited period of time.

C. IBM Routinely Licenses Its Patents But Will Enforce Its Rights Against Those Who Unlawfully Use IBM's Intellectual Property Rather Than Pay A Fair Royalty For A License.

22. IBM's commitment to creating a large patent portfolio underscores the value that IBM places in the exchange of innovation, and disclosure of that innovation, in return for limited exclusivity. Indeed, IBM has used its patent portfolio to generate revenue and other significant value for the company by executing patent cross-license agreements. The revenue generated through patent licensing enables IBM to continue to commit resources to innovation. Cross licensing, in turn, provides IBM with the freedom to innovate and operate in a manner that respects the technology of others.

23. Given the investment IBM makes in the development of new technologies and the management of its patent portfolio, IBM and its shareholders expect companies to act responsibly with respect to IBM's patents. IBM facilitates this by routinely licensing its patents in many fields and by working with companies that wish to use IBM's technology in those fields in which IBM grants licenses. When a company appropriates IBM's intellectual property but refuses to negotiate a license to use that intellectual property, IBM has no choice but to seek judicial assistance. In the case of Carvana, IBM tried, on multiple occasions, to discuss potential licensing alternatives, but Carvana filed a lawsuit instead of negotiating.

D. IBM Invented Methods For Presenting Applications And Advertisements In An Interactive Service While Developing The PRODIGY Online Service.

24. The inventors of the '849 patent developed the patented technologies as part of IBM's efforts to launch the PRODIGY online service ("Prodigy"), a forerunner to today's Internet, in the late 1980s. The inventors believed that, to be commercially viable, Prodigy would have to provide interactive applications to millions of users with minimal response times. The inventors believed that the "dumb" terminal approach that had been commonly used in conventional systems, which heavily relied on host servers' processing and storage resources for performance, would not be suitable. As a result, the inventors sought to develop more efficient methods of communication that would improve the speed and functionality of interactive applications and reduce equipment capital and operating costs.

25. In light of the above considerations, the inventors developed novel methods for presenting applications and advertisements in an interactive service that would take advantage of the computing power of each user's PC and thereby reduce demand on host servers, such as those used by Prodigy. The inventors recognized that if applications were structured to be comprised of "objects" of data and program code capable of being processed by a user's PC, the Prodigy system

would be more efficient than conventional systems. By harnessing the processing and storage capabilities of the user's PC, applications could then be composed on the fly from objects stored locally on the PC, reducing reliance on Prodigy's server and network resources.

26. The service that would eventually be called Prodigy embodied inventions from the '849 patent when it launched in late 1988, before the existence of the World Wide Web. The efficiencies derived from the use of the patented technology permitted the implementation of one of the first graphical user interfaces for online services. The efficiencies also allowed Prodigy to quickly grow its user base. By 1990, Prodigy had become one of the largest online service providers with hundreds of thousands of users. Prodigy was widely praised in the industry and is still held up as an example of innovation in computer networks that predated even the advent of the World Wide Web. The technological innovations embodied in this patent persist to this day and are fundamental to the efficient communication of Internet content.

27. Today, it is easy to take the World Wide Web, powerful computers, and high-speed network connectivity for granted. Not so in 1988, when the first application in the '849 patent's priority chain was filed. The World Wide Web had not even been conceived yet. Typical personal computers at the time had "512K RAM"—not 512 megabytes or gigabytes of RAM, but 512 kilobytes. '849 patent at 9:16-18. The '849 patent also describes the use of 1,200 to 2,400 bps (bits per second) modems to access a network—a far cry from today's high-speed internet. *Id.* at 9:18-20.

28. The limited processing power and network bandwidth available in 1988 posed significant technical obstacles to the development and adoption of network-based interactive services, in which many users may access interactive services provided by a host. *Id.* at 1:34-58. Accordingly, the '849 patent specifically identifies slowdowns in network response time caused by processing bottlenecks at the host as a problem to be solved:

[I]n conventional time-sharing computer networks, the data and program instructions necessary to support user sessions are maintained at a central host computer. However, that approach has been found to create processing bottlenecks as greater numbers of users are connected to the network; bottlenecks which require increases in processing power and complexity; e.g., multiple hosts of greater computing capability, if the network is to meet demand. Further, such bottlenecks have been found to also slow response time as more users are connected to the network and seek to have their requests for data processing answered. *Id.* at 10:42-53; see also *id.* at 1:43-52, 10:54-57.

29. As the '849 patent also explains, simply adding additional computing capacity to the hosts is not enough to fix the bottleneck problem. “[E]ven in the case where additional computing power is added, and where response time is allowed to increase, eventually the host becomes user saturated as more and more users are sought to be served by the network.” *Id.* at 10:58-61. In other words, even a host with additional computing capacity would still have limits on how many users it could support in conventional approaches.

30. Conventional approaches to providing advertising in interactive services exacerbated the bottleneck problem by clogging limited network bandwidth. In conventional approaches to advertising in interactive services, advertising had to compete with service application data for limited network bandwidth. *Id.* at 2:20-30. That competition between advertising and service application data had “the undesirable effect of diminishing service response time.” *Id.* at 2:25-26.

31. The bottleneck problem arises from the limitations of networks that rely exclusively on central hosts to satisfy users’ data processing requests and the limited network bandwidth available at the time of the invention. Accordingly, the bottleneck problem addressed by the '849 patent is a “technical problem.”

32. Before this suit, the '849 patent had been unsuccessfully challenged three times on grounds of alleged patent ineligibility. In the matter of *IBM v. The Priceline Grp., Inc.*, C.A. No. 1:15-cv-00137 (D. Del.), the defendants (collectively “Priceline”) filed a motion to dismiss, alleging

that the '849 patent was directed to unpatentable subject matter. The Delaware court denied Priceline's motion, finding that "Defendants have failed to meet their burden of demonstrating that . . . claim 1 of the '849 patent [is] devoid of inventive concepts." *IBM v. The Priceline Grp., Inc.*, 2016 WL 626495, at *24 (D. Del. Feb. 16, 2016).

33. In the matter of *Kayak Software Corp. v. IBM.*, CBM2016-00075, Priceline again challenged the '849 patent on alleged patent eligibility grounds, this time before the Patent Trial and Appeal Board ("PTAB"). Just like in the district court, the PTAB rejected Priceline's challenge. The PTAB "agree[d] with Patent Owner the disclosure of the '849 patent itself is almost exclusively directed to solving a problem arising in computer technology (i.e., bandwidth) with a computerized solution (i.e., local storage)." *Kayak Software Corp. v. IBM.*, CBM2016-00075, Paper 16 (PTAB Dec. 15, 2016)) at 19. The PTAB thus concluded, "Petitioner has not shown sufficiently that independent claims 1 and 21 are directed to an unpatentable 'abstract idea'" *Id.* at 20.

34. Although the parties filed other summary judgment motions in the Priceline case, Priceline chose not to file a summary judgment motion to challenge the patent eligibility of the '849 patent.

35. In the matter of *IBM v. Groupon, Inc.*, C.A. No. 1:16-cv-00122 (D. Del.), Groupon, Inc. ("Groupon") moved for judgment on the pleadings that the '849 patent was directed to ineligible subject matter. The court denied Groupon's motion, finding that "the asserted claims for the Filepp patents are not directed to an abstract idea and are directed to patent-eligible subject matter." *IBM v. Groupon, Inc.*, 289 F. Supp. 3d 596, 607 (D. Del. 2017).

E. IBM Invented Methods For A Runtime User Account Creation Operation Using A Single-Sign-On (SSO) Process In A Federated Computing Environment.

36. The inventors of the '346 patent developed the patented technology as part of IBM's efforts to improve single-sign-on technology. Online service providers, like website operators,

typically use “sign-on” operations to manage access to protected resources, like confidential webpages. ’346 patent at 6:26–30. A user signs-on by providing authentication credentials, such as a username and password, which the service provider verifies to authenticate the user’s identity. *Id.* at 6:31–36. Then, the service provider can determine whether the identified user has authorization to access the protected resource and, if so, grants access. *Id.* at 6:37–43, Fig. 1C. Although that process has become commonplace, it is time consuming for users to sign-on every time they wish to access a protected resource. *Id.* at 1:25–33.

37. One way to address the shortcomings of repetitive sign-on operations is to authenticate users for an entire “session,” *i.e.*, a series of multiple transfers of information between the server and the client. *Id.* at 1:53–61, 6:17–22. That technology is called ***single***-sign-on because users are only required to sign-on once per session. *Id.* at 1:53–61. For example, users could enter a user name and password on the homepage of a service provider and request multiple protected webpages without reentering their credentials. But prior art single-sign-on methods were problematic because they required users to have preexisting user accounts at the service provider. *Id.* at 2:19–42.

38. As Dr. Heather Hinton, first named inventor of the ’346 patent, testified in prior proceedings, prior art systems could not take advantage of the full benefits of single-sign-on because of this fundamental problem.

39. The inventors of the ’346 patent sought to develop single-sign-on technology that would permit a new user of a service provider to access protected resources. They developed novel methods for systems interacting within a “federated computing environment” to trigger a single-sign-on operation on behalf of a user in order to obtain access to a “protected resource” by creating an account for the user. The specification discloses how to structure a “federated computing environment” using a nonconventional arrangement of computer components. *Id.* at 10:62–11:7,

11:28–35. The specification describes a “protective resource” using precise technical terms that demonstrate “how” to solve the limitations of prior art single-sign-on operations. *Id.* at 5:60–67, 6:26–30, 8:45–48, 11:28–35. And it specifies the “ordered combination” of technical steps necessary to implement the claimed embodiments. *See, e.g., id.* at Figs. 9, 11.

40. One implementation of the ’346 patent involves using “tokens” to facilitate such interactions. “A token provides direct evidence of a successful operation and is produced by the entity that performs the operation, e.g., an authentication token that is generated after a successful authentication operation. A Kerberos token is one example of an authentication token that may be used with the present invention.” *Id.* at 8:49–54. Such binary security tokens can implement web services message-level security. When a user accesses a service provider and signs into the identity provider via single-sign-on operations, the identity provider authenticates the user. The identity provider provides a token to the service provider “to provide proof of authentication of a user.” *Id.* at 22:15–19. The service provider would in turn, “translate” the identity provider’s token into a “locally valid user identifier . . . based on information contained in the [] token” in order to “build a local session for the user.” *Id.* at 24:16–25:3. After the user has been found to be authenticated by the identity provider, the system provider can then create an account for the user at the service provider, thus bypassing any requirement for the user to directly create an account at the service provider. The ’346 patent thus extends the benefits of single-sign-on technology to allow the user to access protected resources at any number of service providers without having to first set up a user account.

41. The ’346 patent has been unsuccessfully challenged on grounds of alleged patent ineligibility. In the matter of *IBM v. The Priceline Grp., Inc.*, C.A. No. 1:15-cv-00137 (D. Del.), Priceline filed a motion to dismiss, alleging that the ’346 patent was directed to unpatentable subject

matter. The Delaware court denied the motion, finding the patent was not directed to an abstract idea: “The true heart of the invention is the utilization of SSO technology to automatically create an account at the service provider level on behalf of users who did not previously have such accounts, all in order to allow the user to access protected resources at the service provider.” *IBM v. The Priceline Grp., Inc.*, 2016 WL 626495, at *16 (D. Del. Feb. 16, 2016). The Court also rejected the argument that the claim did not contain inventive aspects: “The specification describes the improvement over the prior art encompassed by the invention as the ‘eliminat[ion] [of] these prerequisites’ because while ‘[i]n the prior art, the service provider cannot automatically create an active session for the user and allow access to protected resources; with the present invention, the service provider dynamically performs a runtime linked-user-account creation operation at the service provider by creating a linked user account based on the user identity . . . that has been provided by the identity provider to the service provider[.]’” *Id.* at *19.

42. Although the parties filed summary judgment motions in the *Priceline* case, Priceline chose not to file a motion to challenge the patent eligibility of the ’346 patent.

43. In the *IBM v. Groupon* case, Groupon chose not to file any motions challenging the patent eligibility of the ’346 patent at the pleading stage or at the summary judgement stage. The case proceeded to trial. The jury rendered a verdict of willful infringement and no invalidity on all four of the patents-in-suit, including the ’346 patent, thus further showing the continued importance and relevance of the invention of the ’346 patent to modern network technology.

44. The matters of *IBM v. Expedia* and *IBM v. Airbnb* also involved the ’346 patent. None of the defendants in those litigations filed motions that challenged the patent eligibility of the ’346 patent.

45. The Federal Circuit has interpreted the claims of the ’346 patent in an appeal

concerning two final written decisions issued by the PTAB. In reversing the PTAB’s finding that a subset of claims of the ’346 patent were anticipated by prior art, the Federal Circuit explained that the ’346 patent solves “the special challenges of providing single-sign-on capabilities in a ‘federated’ environment,” which the court understood as an environment containing different enterprises that “adhere to certain standards of interoperability.” *IBM v. Iancu*, 759 F. App’x 1002, 1004–05 (Fed. Cir. 2019). The Federal Circuit distinguished how the prior art approached authentication from how the ’346 patent solved the problem by looking at how the claimed “federated computing environment” and “single-sign-on” operated in the context of the invention. *Id.* at 1007–09. The Federal Circuit’s opinion confirms that the ’346 patent is directed to a non-abstract computer-specific problem and involves innovation in “how” to solve the limitations of prior art single-sign-on techniques.

46. In the matter of *IBM v. Zillow Grp., Inc.*, C.A. No. 2:20-cv-00851 (W.D. Was.), Zillow filed a motion for judgment on the pleadings, alleging that the ’346 patent was directed to unpatentable subject matter. The Court disagreed, stating that “Zillow has offered no basis for disagreeing with the previous conclusion [from the *Priceline* case] that the ‘true heart of the [’346] invention is the utilization of SSO [single-sign-on] technology to automatically create an account at the service provider level on behalf of users who did not previously have such accounts, all in order to allow the user to access protected resources at the service provider.” *IBM v. Zillow Grp., Inc.*, 549 F. Supp. 3d 1247, 1274 (W.D. Wash. 2021). The Court concluded: “Like the alleged infringers in the Delaware matter, Zillow has not demonstrated that the ’346 Patent fails to pass muster under Alice Step One. Thus, the Court need not advance to Alice Step Two, and as to the ’346 Patent, Zillow’s motion for judgment on the pleadings is DENIED.” *Id.* at 1275.

47. On October 25, 2022, the Patent Trial and Appeal Board (“PTAB”) instituted *inter partes* review proceeding of claims 1-20 of the ’346 patent as anticipated and/or obvious over the

prior art. *See Ebates Performance Marketing, Inc. d/b/a Rakuten Rewards v. Int'l Bus. Mach. Corp.*, IPR2022-00646 (P.T.A.B. Oct. 25, 2022). Although the PTAB issued a Final Written Decision on October 11, 2023, finding that claims 1-4, 12-16, 18, and 19 are unpatentable, it upheld the validity of claims 5-11, 17, and 20. *See Ebates Performance Marketing, Inc. d/b/a Rakuten Rewards v. Int'l Bus. Mach. Corp.*, IPR2022-00646 (P.T.A.B. Oct. 11, 2023). On November 21, 2023, IBM filed a notice of appeal regarding the invalidity finding of the PTAB. *See Notice of Docketing, Int'l Bus. Mach. Corp. v. Ebates Performance Marketing, Inc.*, C.A. No. 2024-1170, (Fed. Cir. Nov. 21, 2023), ECF No. 1

F. IBM Invented Methods and Systems For Stacking Portlets In Portal Pages

48. The inventors of the '234 patent developed the patented technology as part of IBM's efforts to improve customizable portal pages. Unlike traditional off-line media, portal pages on computer screens, tablets, mobile devices, and other media allow the display of dynamically updated information aggregated from different sources and customized for the user. A portal page may be comprised of individual portlets, which access hardware and software to gather data and offer information to portal pages. Portals and portlets can be associated with preferences selected by the user and thus can provide an effective mechanism to view information of interest from a variety of sources at the same time. However, as the number of portlets increase, portal pages can become overcrowded and disorganized. In the prior art, overcrowding resulted in cluttered portal pages that inhibited the user from effectively viewing and interacting with all of the available portlets. That problem was unique to computer systems, because unlike traditional media, such as newspapers, magazines, and books, portals and portlets are not limited to predetermined content, information sources, or static areas of display.

49. The inventors of the '234 patent recognized a need to improve the customization of portal pages. They developed a novel approach for organizing and displaying portlets on a portal

page. That method includes determining whether a subset of portlets is stackable. The inventors realized that portlets could be stackable if they have certain characteristics in common, such as common hardware resources accessed, software resources accessed, content elements, or markup elements. A group of stackable portlets could then be arranged into a stack on the GUI. In a stack, multiple portlets could be grouped together such that two or more portlets occupy less space than they would individually, thereby reducing portlet clutter. The user may navigate between the portlets that comprise a stack of portlets using selection methods such as forward and back buttons or a scroll bar. One portlet in a stack could be presented at the top of the stack at a given time. Alternatively, multiple portlets in the stack could be presented at the top of the stack at once. For example, forty portlets could be stacked with five portlets presented at a time. Multiple stacks of portlets are then arranged into a stack of stacks of portlets. The method could provide a control for the user to select a different stack of portlets not currently presented to the user from the stack of stacks of portlets.

50. By developing a method for stacking stacks of portlets and allowing users to select which stack to display, the inventors resolved the issue of the cluttered portal page with a new and improved way of organizing and displaying the portlets comprising portal pages. The '234 patent thus extends the benefits of portal pages by allowing users to interact effectively with portal pages and generate as many portlets as they prefer—without overcrowding their device screens. Specifically, the '234 patent discloses and claims novel methods of organizing portlets not only as “stacks” but as “stacks of stacks,” such that only a subset of portlets may be presented at any given time, based on characteristics such as common hardware, software, content type, markup, user profiles, and user preferences.

51. In order to implement this invention, the inventors of the '234 patent developed a particular approach and corresponding software framework that combined several key features.

52. First, in the invention of the '234 patent, the graphical user interface comprises a portal page that is dynamically generated. The portal page aggregates information from a variety of different sources, and the generation of the portal page is “dynamic” because when the user returns to the portal page, the portal pulls the most current information from each information source displayed on the page. See '234 patent at 1:11-13. When the data changes at its source, the portal page updates to reveal that change to the user, without an explicit request from the user. This is in contrast to earlier graphical user interfaces such as basic file and directory structures of a browser hierarchy, where the user was required to manually organize each piece of information into static folders, and return to each individual source to pull updated information as the sources changed. By dynamically generating the portal page, the user is relieved of the burden of having to repetitively manually specify the information sources and organize them on the page.

53. In enabling these dynamic updates, the '234 patent describes that the portal can be generated based on the information contained within a user profile. See '234 patent at 2:40-44. The user profile stores customized information relating to the user's interests and requirements. In this way, the portal is automatically and dynamically generated to contain information that is current and customized for the user. And further, the computer system may detect the user's identity and interests without even requiring the user to login (such as by placing a “cookie” on the user's computer system). *Id.* at 2:42-44. When the user revisits the portal page, it is automatically reconstructed and updated without requiring the user to manually reconfigure the page content (for example, by re-entering search terms) or layout (for example, by adjusting the location of page components).

54. Second, in the invention of the '234 patent, the computer systems determine the optimal manner to organize groups of portlets into “stacks” by determining which portlets are “stackable.” In this process, the system automatically identifies whether there exists a set of common

characteristics across a set of portlet data items, and if so, the data items with common characteristics are gathered together into stacks of related items. See '234 patent at 1:46-49. The common characteristics used to determine whether portlets are stackable may relate to various properties of portlet data items, including those relating to software, hardware, content, and markup. *Id.*

55. This is in contrast to prior art search interfaces, such as the basic search interface or the user-defined filtering interface, where either the computer system will retrieve only the data items that precisely fit each of the specific search parameters specified by the user, and organize them into one basic, scrollable list, or where the user is required to specify a complicated rule set of filters that determines how incoming data items are sorted on the graphical user interface. By inventing a computer system that automatically determines whether portlets are “stackable,” the computer system is able to present large quantities of information from disparate sources on the graphical user interface in the manner that is most logical, with no additional user input required. And by grouping related portlets into a stack that is displayed together within the portal page, the user can better visualize the relationship between data items of interest, thereby facilitating the selection of individual portlet items of interest.

56. The common characteristics that are used to determine whether portlet data items are stackable can also be derived from a user profile or from user preferences. See '234 patent at 4:575:3. By allowing the user profile and/or user preferences to influence the determination of stackable portlets, the portal page can be automatically customized to the user's interest.

57. Third, in the invention of the '234 patent, a group of portlets with sufficient characteristics in common are first arranged into a “stack,” and each stack is then arranged on the graphical user interface into a “stack of stacks.” See '234 patent at 8:16-27. In contrast to earlier graphical user interface displays, such as simple data lists sortable by a single attribute, the user of

the system of the '234 patent can browse through information that has been organized by multiple dimensions.

58. Generating the portal page as a stack of stacks also reduces clutter and crowding in the display of the graphical user interface. Instead of generating a display that concurrently displays multiple stacks of related portlet data items separately (where each stack of portlets may be of interest to the user at some time), the invention disclosed in the '234 patent groups related stacks of portlets into a further level of organization, or a stack of stacks. Crowding and clutter in the display is therefore reduced because only a first stack is initially presented to the user, instead of multiple concurrently displayed stacks.

59. Fourth, in the invention of the '234 patent, a first stack of portlets is presented to the user at a time, and the graphical user interface also features a control that the user can manipulate in order to view a second stack of portlets that is not currently presented. *See* '234 patent at 8:25-27. In this manner, the user can easily switch between the portlet data items presented in each stack. This substantially eases the user's transition between different views of data within the portal page, without introducing clutter and crowding to the display. Furthermore, if the first presented stack of portlets does not conveniently fulfill the user's information need, the user can easily transition to a different view that better matches their need. This is an improvement over earlier graphical user interface display systems such as a data list sortable by a single attribute, wherein the user is required to manually scroll through all of the listings responsive to their search.

60. On June 1, 2022, the Patent Trial and Appeal Board ("PTAB") instituted *inter partes* review proceeding of claims 1-18 of the '234 patent. *See Ebates Performance Marketing, Inc. d/b/a Rakuten Rewards v. Int'l Bus. Mach. Corp.*, IPR2022-00133 (P.T.A.B. May 24, 2023). The PTAB issued a Final Written Decision on May 24, 2023, finding that claims 1, 3-6, 13, and 15-18 are

unpatentable but upholding the validity of claims 2, 7-12, and 14. *See Ebates Performance Marketing, Inc. d/b/a Rakuten Rewards v. Int'l Bus. Mach. Corp.*, IPR2022-00133 (P.T.A.B. May 24, 2023).

G. Carvana Has Built Its Business By Infringing IBM's Patents.

61. Carvana offers to buy and sell used vehicles. Carvana has grown rapidly over the last several years and now has billions of dollars of annual revenue per year.

62. Rather than build its business on its own technologies, Carvana has appropriated the inventions of the Patents-In-Suit. Websites under Carvana's control, including at least www.carvana.com, use the technology claimed by the Patents-In-Suit to offer to buy and sell used vehicles. Carvana mobile applications, including at least mobile applications running on, for example, Apple iOS and Google Android operating systems, use the technology claimed by the Patents-In-Suit to provide similar services to their users.

63. IBM has tried to work with Carvana to negotiate a licensing agreement for more than two years.

64. In October 2021, IBM informed Carvana it was infringing IBM's patents through operation of its website www.carvana.com. On October 27, 2021, IBM provided Carvana with detailed evidence showing how Carvana infringes several IBM patents, including the '849, '234, and '346 patents and offered to meet with Carvana to discuss a business resolution. Months later, on March 18, 2022, Carvana asserted that it did not infringe any of IBM's patents.

65. On August 8, 2023, IBM provided Carvana with additional detailed notice of IBM's infringement claims and again invited Carvana to engage in meaningful discussion. Instead, Carvana refused to have a meeting to engage in licensing discussions.

66. On August 11, 2023, IBM again provided Carvana with additional detailed notice of IBM's infringement claims showing how Carvana infringes at least claim 7 the '234 patent and again

invited Carvana to engage in meaningful discussion. Instead, Carvana refused to have a meeting to engage in licensing discussions.

67. Instead of responding to IBM's most recent letter on August 11, 2023, on October 2, 2023, Carvana brought its declaratory judgment action without notifying IBM beforehand.

COUNT ONE

INFRINGEMENT OF THE '849 PATENT

68. IBM incorporates by reference paragraphs 1-67.

69. IBM is the owner of all right, title and interest in the '849 patent. The '849 patent was duly and properly issued by the USPTO on July 4, 2006. The '849 patent was duly assigned to IBM. A copy of the '849 patent is attached hereto as Exhibit 1.

70. In violation of 35 U.S.C. § 271(a), Carvana has directly infringed one or more of the claims of the '849 patent by having made, designed, offered for sale, sold, provided, used, maintained, and/or supported its websites (including www.carvana.com) and its mobile applications (including the Carvana apps for mobile devices running on, for example, the Apple iOS and Google Android operating systems). Alternatively, Carvana has contributed to the infringement of one or more of the claims of the '849 patent in violation of 35 U.S.C. § 271(c) by selling, offering to sell, and/or supplying components, materials, or apparatuses for use in practicing the patented methods of the '849 patent by end users and consumers, as described below. Alternatively, Carvana has induced others, including end users and customers, to infringe one or more of the claims of the '849 patent in violation of 35 U.S.C. § 271(b), as described below.

71. Carvana has infringed at least claims 1 and 8 of the '849 patent, as described below.

72. For example, Carvana has directly infringed at least claim 1 of the '849 patent through www.carvana.com and the Carvana mobile applications, at least by:

- a. presenting advertising (such as vehicle listings) obtained from a computer

network (such as the Internet), the network including a multiplicity of user reception systems (such as the computers or mobile devices of Carvana's users) at which respective users can request applications (such as applications on Carvana's webpage or mobile apps), from the network, that include interactive services (such as the interactive features and elements of Carvana's webpage or mobile apps), the respective reception systems including a monitor (such as a computer monitor or mobile screen of a Carvana user's computer or mobile device) at which at least the visual portion of the applications can be presented as one or more screens of display, the method comprising the steps of:

b. structuring applications (such as applications on Carvana's webpage or mobile apps) so that they may be presented, through the network, at a first portion (such as the portion of the webpage or mobile app in which the interactive features and elements of the webpage or mobile app are presented) of one or more screens of display; and

c. structuring advertising (such as vehicle listings advertised to users) in a manner compatible to that of the applications so that it may be presented, through the network, at a second portion (such as the portion of the webpage in which the vehicle listing is presented) of one or more screens of display concurrently with applications (such as applications on Carvana's webpage or mobile apps), wherein structuring the advertising includes configuring the advertising as objects (such as HTTP Responses containing png, gif, or jpeg files) that include advertising data and;

d. selectively storing (such as by setting a cache control parameter) advertising objects at a store (such as the browser cache or application cache) established at the reception system.

73. As another example, Carvana has directly infringed at least claim 8 of the '849 patent through www.carvana.com and the Carvana mobile applications, at least by:

a. presenting advertising (such as vehicle listings advertised to users) in a computer network (such as the Internet), the network including a multiplicity of user reception systems (such as the computers or mobile devices of Carvana's users) at which respective users can request applications (such as applications on Carvana's webpage or mobile apps) that include interactive services (such as the interactive features and elements of Carvana's webpage or mobile apps), the method comprising the steps of:

b. compiling data concerning the respective users (such as unique user identifiers and user interactions with the applications and advertisements);

c. establishing characterizations for respective users (such as information used for contextual targeting) based on the compiled data; and

d. structuring advertising so that it may be selectively supplied to and retrieved at the reception systems for presentation to the respective users in accordance with the characterizations established for the respective reception system users (such as presenting advertisements that are individualized to particular users by using a cookie, internal device ID, Apple IDFA, Google GAID, Android ID, and/or other criteria based on and developed for respective users), wherein structuring advertising includes supplying advertising data to the reception system (such as by caching advertisements) and storing a predetermined amount of the advertising data in a store (such as the browser cache or application cache) established at the respective reception systems.

74. Alternatively, to the extent the "structuring" step was performed by a third party (in addition to and/or separate from Carvana's performance), such as a browser or mobile operating

system, that performance is attributable to Carvana at least because Carvana had an agency or contractual relationship with said third party, or Carvana directed or controlled the performance of said third party. For example, Carvana directed or controlled the performance of the “structuring” steps by browsers and mobile operating systems because it, for example, established the manner or timing of the performance by, for example, designing and generating the HTML template and computer code (such as JavaScript and JSON), which comprise www.carvana.com and the Carvana mobile applications. That HTML template and computer code contained instructions that direct the browser or mobile operating system to structure the Carvana webpage or mobile applications in a particular manner. For another example, Carvana directed or controlled the performance of the “structuring” steps by browsers and mobile operating systems because it profited from such performance by, for example, increasing use and user interactions by designing its website in a user-friendly manner. Carvana had the right to stop or limit infringement by, for example, redesigning the HTML and computer code of www.carvana.com and the Carvana mobile applications to function in a non-infringing manner.

75. Alternatively, to the extent that the “selectively storing” step was performed by a third party (in addition to and/or separate from Carvana’s performance), such as a browser or mobile operating system, that performance is attributable to Carvana at least because Carvana had an agency or contractual relationship with said third party, or Carvana directed or controlled the performance of said third party. For example, Carvana directed or controlled the performance of the “selectively storing” step by browsers and mobile operating systems because it, for example, conditioned receipt of a benefit, such as reduced latency, on the performance of the claimed steps, and established the manner or timing of the performance by, for example, determining which image and other data is cached and for how long. For another example, Carvana directed or controlled the performance of

the “selectively storing” step by browsers and mobile operating systems because it profited from such performance by, for example, increasing use and user interactions through reduced latency. Carvana had the right to stop or limit infringement by, for example, determining that image and other data should not be cached.

76. Alternatively, to the extent that the “selectively storing” step was performed by a third party (in addition to and/or separate from Carvana’s performance), such as a Content Delivery Network (“CDN”) or other server, that performance is attributable to Carvana at least because Carvana had an agency or contractual relationship with said third party, or Carvana directed or controlled the performance of said third party. For example, Carvana directed or controlled the performance of the “selectively storing” step by CDNs because it, for example, conditioned receipt of a benefit, such as payment for services, on the performance of the claimed steps, and established the manner or timing of the performance by, for example, determining which image and other data is cached and for how long. For another example, Carvana directed or controlled the performance of the “selectively storing” step by browsers and mobile operating systems because it profited from the performance by, for example, increasing use and user interactions through reduced latency. Carvana had the right to stop or limit infringement by, for example, determining that image and other data should not be cached.

77. Carvana has had knowledge of the ’849 patent and its direct and indirect infringement since at least October 27, 2021.

78. Carvana also has indirectly infringed one or more claims of the ’849 patent through its websites (including www.carvana.com) and the Carvana mobile applications (including the Carvana applications for mobile devices running on, for example, the Apple iOS and Google Android operating systems). On information and belief, in certain circumstances, client devices and software

(e.g., devices and software used by end users and customers of Carvana's website and the associated mobile applications) have directly infringed the '849 patent through the use of the website and mobile applications. In particular, to the extent Carvana did not perform the method steps, in certain circumstances, client devices and software (e.g., devices and software used by end users, customers, and potential customers of Carvana's website and the associated mobile applications) performed at least the methods of presenting advertising recited by claims 1 and 8 of the '849 patent.

79. On information and belief, despite knowledge of the infringement of the '849 patent, Carvana intended to contribute to patent infringement by third parties by selling, offering to sell, and/or supplying components, materials, or apparatuses for use in practicing the patented methods of the '849 patent by end users and consumers, as described in this section.

80. For example, Carvana provided computer code (such as HTML, JavaScript, JSON, and image files) underlying the Carvana website and mobile applications that is sent to customers and end users for use in infringing the '849 patent, and such computer code did not have substantial non-infringing uses. Such computer code was especially made and/or especially adapted for use in infringing the '849 patent and was not a staple article or commodity of commerce suitable for substantial non-infringing use. The only substantial use of such computer code was for the claimed subject matter involving presenting applications along with advertising as described in the '849 patent.

81. Further, as a part of providing said computer code, Carvana entered into binding contracts with end users and customers to use Carvana's website and mobile applications, including in an infringing manner, by binding the users to a terms of use agreement governing access to and use of the accused website and mobile applications.

82. Carvana has received valuable consideration from customers and end users located in this judicial district, including information provided by customers and end users, information automatically collected from customers and end users, and monetary consideration from customers and end users who purchased vehicles and used services through Carvana's website and mobile applications. When customers and end users in this judicial district used the accused website and/or mobile applications, Carvana collected information about the customers and end users, their devices, and their interaction with the accused website and the associated mobile applications. Carvana worked with service providers and advertising networks to track and manage cookie information and activities of customers and end users across different websites and devices. Third parties used cookie information collected by Carvana to deliver advertisements to end users and customers based on their use of the accused website and mobile applications. Carvana's business was funded at least in part through advertising. The applications and website were especially made and/or especially adapted for use in infringing the Patents-In-Suit, including the '849 patent, at least as detailed above, and were not a staple article or commodity of commerce suitable for substantial non-infringing uses because, among other things, the components sent to users were uniquely designed only to access the infringing aspects of Carvana's website and mobile applications.

83. On information and belief, despite its knowledge of the infringement of the '849 patent, Carvana intended to induce patent infringement by third parties, including at least the direct infringement by end users and customers, as described in this section. Carvana encouraged and instructed customers and end users to use Carvana's website and the associated mobile applications in a manner that has infringed the '849 patent by advertising the website and mobile applications, providing customer support, and designing its website and mobile applications in such a way that the use of the website and mobile applications by an end user or customer infringed the '849 patent.

84. On information and belief, to the extent Carvana was not aware that it was encouraging its customers and end users to infringe the '849 patent, its lack of knowledge was based on being willfully blind to the possibility that its acts would cause infringement.

85. IBM has been damaged by the infringement of its '849 patent by Carvana and is entitled to recover from Carvana the damages sustained by IBM as a result of Carvana's wrongful acts.

86. The infringement by Carvana of the '849 patent has been deliberate and willful, entitling IBM to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT TWO

INFRINGEMENT OF THE '234 PATENT

87. IBM incorporates by reference paragraphs 1-86.

88. IBM is the owner of all right, title and interest in the '234 patent. The '234 patent was duly and properly issued by the USPTO on February 14, 2017. The '234 patent was duly assigned to IBM. A copy of the '234 patent is attached hereto as Exhibit 2.

89. In violation of 35 U.S.C. § 271(a), Carvana has directly infringed one or more of the claims of the '234 patent by having made, designed, offered for sale, sold, provided, used, maintained, and/or supported its websites (including www.carvana.com) and its mobile applications (including the Carvana applications for mobile devices running on, for example, the Apple iOS and Google Android operating systems). Alternatively, Carvana has induced others, including end users and customers, to infringe one or more of the claims of the '234 patent in violation of 35 U.S.C. § 271(b), as described below. Carvana's infringement is continuing.

90. For example, Carvana directly infringes at least claim 7 of the '234 patent at least by controlling and using (e.g., making available and maintaining) www.carvana.com and the Carvana mobile applications, which at least comprise:

- a. An apparatus (such as a Carvana network server) comprising:
 - b. a processor connected to a memory storing instructions (such as Carvana back-end code) that when executed by the processor provide for:
 - c. a plurality of portlet generators, wherein each portlet generator generates a portlet (such as Carvana back-end code and processes for generating the vehicle listings); and
 - d. a portal page generator (such as a Carvana network server and its back-end code and processes for generating the Carvana website or mobile app page), wherein the portal page generator receives a client request for a portal page that includes a subset of portlets (such as a user request for the “Coupe” vehicle listings page on the Carvana website or mobile apps), examines the subset of portlets, identifies at least one commonality in the subset of portlets, determines whether the subset of portlets is stackable (such as organizing the individual vehicle listings in the Carvana website or mobile apps into particular sets of vehicle listings, such as “Coupe” vehicle listings or “SUV” vehicle listings), and, responsive to the subset of portlets being stackable, identifies two or more stacks of portlets that are stackable (such as the sets of “Coupe” or “SUV” vehicle listings in the Carvana website or mobile apps), and generating the portal page (such as the “Coupe” vehicle listings page on the Carvana website or mobile apps) such that the two or more stacks of portlets are generated as a stack of stacks, wherein the stack of stacks presents a first stack of portlets (such as the display of “Coupe” vehicle listings) and a control for selecting a second stack of portlets from within the two or more stacks of portlets that is not currently presented (such as providing the

options for the user to select other stacks of vehicle listings not currently presented to the user, such as “SUV” vehicle listings on the Carvana website or mobile apps).

91. Carvana receives valuable consideration from customers and end users located in this judicial district from Carvana’s control and use of the Carvana website and mobile apps, including information provided by customers and end users, information automatically collected from customers and end users, and monetary consideration from customers and end users who purchase vehicles and use services through Carvana’s website and mobile applications. When customers and end users in this judicial district use the accused website and/or mobile applications, Carvana collects information about the customers and end users, their devices, and their interaction with the accused website and the associated mobile applications. Carvana works with service providers and advertising networks to track and manage cookie information and activities of customers and end users across different websites and devices. Third parties use cookie information collected by Carvana to deliver advertisements to end users and customers based on their use of the accused website and mobile applications. Carvana’s business is funded at least in part through advertising.

92. Carvana has had knowledge of the ’234 patent and its direct and indirect infringement since at least August 11, 2023.

93. Carvana also indirectly infringes one or more claims of the ’234 patent through its websites (including www.carvana.com) and its mobile applications (including the Carvana applications for mobile devices running on, for example, the Apple iOS and Google Android operating systems). On information and belief, third parties, such as customers and end users, directly infringe the ’234 patent by accessing and using the accused Carvana website or mobile applications through the devices and software used by those customers and end users.

94. On information and belief, despite its knowledge of the infringement of the ’234

patent, Carvana has intended to induce, and continues to intend to induce, patent infringement by third parties, including at least the direct infringement by end users and customers, as described in this section. Carvana has and continues to encourage and instruct customers and end users to use Carvana's website and the associated mobile applications, which infringe the '234 patent as described above, by advertising the website and mobile applications, providing customer support, and designing its website and mobile applications in such a way that they infringe the '234 patent.

95. On information and belief, to the extent Carvana was not aware that it was encouraging its customers and end users to infringe the '234 patent, its lack of knowledge was based on being willfully blind to the possibility that its acts would cause infringement.

96. IBM has been damaged by the infringement of its '234 patent by Carvana and will continue to be damaged by such infringement. IBM is entitled to recover from Carvana the damages sustained by IBM as a result of Carvana's wrongful acts.

97. The continued infringement by Carvana of the '234 patent is deliberate and willful, entitling IBM to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT THREE

INFRINGEMENT OF THE '346 PATENT

98. IBM incorporates by reference paragraphs 1-97.

99. IBM is the owner of all right, title and interest in the '346 patent. The '346 patent was duly and properly issued by the USPTO on December 8, 2009. The '346 patent was duly assigned to IBM. A copy of the '346 patent is attached hereto as Exhibit 3.

100. In violation of 35 U.S.C. § 271(a), Carvana has directly infringed one or more of the claims of the '346 patent by having made, designed, offered for sale, sold, provided, used, maintained, and/or supported its websites (including www.carvana.com) and its mobile applications

(including the Carvana applications for mobile devices running on, for example, the Apple iOS and Google Android operating systems). Alternatively, Carvana has contributed to the infringement of the claims of the '346 patent in violation of 35 U.S.C. § 271(c) by selling, offering to sell, and/or supplying components, materials or apparatuses for use in practicing the patented methods of the '346 patent by end users and consumers, as described in this section. Alternatively, Carvana has induced others, including end users and customers, to infringe one or more of the claims of the '364 patent in violation of 35 U.S.C. § 271(b), as described below. Carvana's infringement is continuing.

101. Carvana infringes at least claims 1 and 5 of the '346 patent, as described below.

102. For example, Carvana directly infringes at least claim 1 of the '346 patent through www.carvana.com and the Carvana mobile applications, at least by:

a. managing user authentication (such as verifying the identity of a Carvana user) within a distributed data processing system (such as a computer network), wherein a first system (such as Facebook and its network) and a second system (such as Carvana and its network) interact within a federated computing environment (such as the environment including Facebook and Carvana) and support single-sign-on operations (such as "Continue with Facebook" sign in operations) in order to provide access to protected resources (such as access to the <https://www.carvana.com/account-ui/personal-details> page, which exists before the single-sign-on operation), at least one of the first system and the second system comprising a processor, the method comprising;

b. triggering a single-sign-on operation (such as launching a sign in operation to "Continue with Facebook") on behalf of the user in order to obtain access to a protected resource that is hosted by the second system (such as the <https://www.carvana.com/account-ui/personal-details> page, which exists before the single-sign-on operation, hosted by Carvana and its network),

wherein the second system requires a user account (such as a Carvana account) for the user to complete the single-sign-on operation prior to providing access to the protected resource;

c. receiving from the first system (such as Facebook and its network) at the second system (such as Carvana and its network) an identifier associated with the user (such as an access token user id or an email address);

d. creating a user account for the user at the second system based at least in part on the received identifier associated with the user after triggering the single-sign-on operation but before generating at the second system a response for accessing the protected resource (such as creating a Carvana account at Carvana and its network after a “Continue with Facebook” sign in operation is triggered, before permitting access to, for example, the <https://www.carvana.com/account-ui/personal-details> page, which exists before the single-sign-on operation), wherein the created user account supports single-sign-on operations between the first system (such as Facebook and its network) and the second system (such as Carvana and its network) on behalf of the user.

103. Carvana also directly infringes at least claim 5 of the ’346 patent through www.carvana.com and the Carvana mobile applications, at least by:

a. managing user authentication (such as verifying the identity of a Carvana user) within a distributed data processing system (such as a computer network), wherein a first system (such as Facebook and its network) and a second system (such as Carvana and its network) interact within a federated computing environment (such as the environment including Facebook and Carvana) and support single-sign-on operations (such as “Continue with Facebook” sign in operations) in order to provide access to protected resources (such as access to the <https://www.carvana.com/account-ui/personal-details> page, which exists before the single-sign-on

operation), at least one of the first system and the second system comprising a processor, the method comprising;

b. triggering a single-sign-on operation (such as launching a sign in operation to “Continue with Facebook”) on behalf of the user in order to obtain access to a protected resource that is hosted by the second system (such as the <https://www.carvana.com/account-ui/personal-details> page, which exists before the single-sign-on operation, hosted by Carvana and its network), wherein the second system requires a user account (such as a Carvana account) for the user to complete the single-sign-on operation prior to providing access to the protected resource;

c. receiving from the first system (such as Facebook and its network) at the second system (such as Carvana and its network) an identifier associated with the user (such as an access token user id or an email address);

d. in response to a determination at the second system (such as Carvana and its network) that the second system does not have sufficient user attribute information (such as the user’s name) to complete creation of a user account (such as a Carvana account) for the user at the second system, sending a request message (such as a HTTP request or API call) from the second system to the first system (such as Facebook and its network) to retrieve user attribute information; and

e. receiving at the second system from the first system a response message (such as a HTTP response or API response) that contains user attribute information (such as the user’s name) that is employed by the second system to complete creation of a user account for the user at the second system;

f. creating a user account for the user at the second system based at least in part on the received identifier associated with the user after triggering the single-sign-on operation but

before generating at the second system a response for accessing the protected resource (such as creating a Carvana account at Carvana and its network after a “Continue with Facebook” sign in operation is triggered, before permitting access to, for example, the <https://www.carvana.com/account-ui/personal-details> page, which exists before the single-sign-on operation), wherein the created user account supports single-sign-on operations between the first system (such as Facebook and its network) and the second system (such as Carvana and its network) on behalf of the user.

104. Alternatively, to the extent the “triggering” step is performed by a third party (in addition to and/or separate from Carvana’s performance), such as a user, browser, or mobile operating system, or identity provider, that performance is attributable to Carvana at least because Carvana has an agency or contractual relationship with said third party, or Carvana controls or directs the performance of said third party. For example, Carvana controls or directs the performance of the “triggering” step by users, browsers, and mobile operating systems because Carvana, for example, conditions receipt of a benefit, such as access to certain applications on Carvana’s website and mobile applications, on the performance of the claimed steps, and establishes the manner or timing of the performance by, for example, triggering the single-sign-on operation using its underlying computer code. As another example, Carvana controls or directs the performance of the “triggering” step by users, browsers, and mobile operating systems because Carvana profits from the performance by, for example, increasing the number of signed-in users accessing Carvana’s website and mobile applications. Carvana has the right to stop or limit infringement, by, for example, not enabling the use of single-sign-on operations.

105. Carvana has had knowledge of the ’346 patent and its alleged direct and indirect infringement since at least October 27, 2021.

106. Carvana also indirectly infringes one or more claims of the '346 patent through its websites (including www.carvana.com) and its mobile applications (including the Carvana applications for mobile devices running on, for example, the Apple iOS and Google Android operating systems). On information and belief, in certain circumstances, client devices and software (e.g., devices and software used by end users and customers of Carvana's website and the associated mobile applications) directly infringe the '346 patent through the use of the website and mobile applications. In particular, to the extent Carvana does not perform the method steps, in certain circumstances, client devices and software (e.g., devices and software used by end users, customers, and potential customers of Carvana's website and the associated mobile applications) perform at least the method for managing user authentication within a distributed data processing system recited by claims 1 and 5 of the '346 patent.

107. On information and belief, despite knowledge of the infringement of the '346 patent, Carvana has intended and continues to intend to contribute to patent infringement by third parties by selling, offering to sell, and/or supplying components, materials, or apparatuses for use in practicing the patented methods of the '346 patent by end users and consumers, as described in this section.

108. For example, Carvana provides computer code (such as HTML, Java, JavaScript, JSON, ActionScript, Objective-C, Swift, and image files) underlying the Carvana website and mobile applications to customers and end users for use in infringing the '346 patent, and such computer code does not have substantial non-infringing uses. Such computer code is especially made and/or especially adapted for use in infringing the '346 patent and is not a staple article or commodity of commerce suitable for substantial non-infringing use. The only substantial use of Carvana's computer code responses is for the claimed subject matter involving managing user authentication

and access to web content such as protected resources as described in the '346 patent.

109. Further, as a part of providing said computer code, Carvana enters into binding contracts with end users and customers to use Carvana's website and mobile applications, including in an infringing manner, including by binding the users to a terms of use agreement governing access to and use of the accused website and mobile applications.

110. Carvana receives valuable consideration from customers and end users located in this judicial district, including information provided by customers and end users, information automatically collected from customers and end users, and monetary consideration from customers and end users who purchase vehicles and use services through Carvana's website and mobile applications. When customers and end users in this judicial district use the accused website and/or mobile applications, Carvana collects information about the customers and end users, their devices, and their interaction with the accused website and the associated mobile applications. Carvana works with service providers and advertising networks to track and manage activities of customers and end users across different websites and devices. Third parties use information collected by Carvana to deliver advertisements to end users and customers based on their use of the accused website and mobile applications. Carvana's business is funded in part through advertising. The applications and website are especially made and/or especially adapted for use in infringing the '346 patent, at least as detailed above, and are not a staple article or commodity of commerce suitable for substantial non-infringing uses because, among other things, the components sent to users are uniquely designed only to access the infringing aspects of Carvana's website and mobile applications.

111. On information and belief, despite its knowledge of the infringement of the '346 patent, Carvana has intended and continues to intend to induce patent infringement by third parties, including at least the direct infringement by end users and customers, as described in this section.

Carvana has and continues to encourage and instruct customers and end users to use Carvana's website and the associated mobile applications in a manner that infringes the '346 patent by advertising the website and mobile applications, providing customer support, and designing its website and mobile applications in such a way that the use of the website and mobile applications by an end user or customer infringes the '346 patent.

112. On information and belief, to the extent Carvana was not aware that it was encouraging its customers and end users to infringe the '346 patent, its lack of knowledge was based on being willfully blind to the possibility that its acts would cause infringement.

113. IBM has been damaged by the infringement of its '346 patent by Carvana and will continue to be damaged by such infringement. IBM is entitled to recover from Carvana the damages sustained by IBM as a result of Carvana's wrongful acts.

114. The continued infringement by Carvana of the '346 patent is deliberate and willful, entitling IBM to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

RELIEF REQUESTED

Wherefore, IBM respectfully requests that this Court enter judgment against Carvana as follows:

- A. That the '849 patent has been infringed by Carvana;
- B. That Carvana's infringement of the '849 patent has been willful;
- C. That the '234 patent has been and continues to be infringed by Carvana;
- D. That Carvana's infringement of the '234 patent has been and continues to be willful;
- E. That the '346 patent has been and continues to be infringed by Carvana;
- F. That Carvana's infringement of the '346 patent has been and continues to be willful;
- G. An award of damages adequate to compensate IBM for the patent infringement that

has occurred, together with pre-judgment interest and costs;

- H. An award of all other damages permitted by 35 U.S.C. § 284, including increased damages up to three times the amount of compensatory damages found;
- I. That this is an exceptional case and merits an award to IBM of its costs and reasonable attorneys' fees incurred in this action as provided by 35 U.S.C. § 285; and
- J. Such other relief as this Court deems just and proper.

DEMAND FOR JURY TRIAL

IBM hereby demands trial by jury on all claims and issues so triable.

Dated: December 4, 2023

Respectfully submitted,

By: /s/ Tamir Packin

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CERTIFICATE OF SERVICE

I hereby certify that that on December 4, 2023, I electrically filed a true and correct copy of the foregoing with the Clerk of the Court using the CM/ECF system, which will then send a notification of such filing (NEF) to all counsel of record.

Dated: December 4, 2023

Respectfully submitted,

By: /s/ Tamir Packin

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